



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,549	02/23/2004	Aiden Flanagan	01-162US2	7760
27774 7590 08/26/2008 MAYER & WILLIAMS PC 251 NORTH AVENUE WEST 2ND FLOOR WESTFIELD, NJ 07090				
EXAMINER				
ABOAGYE, MICHAEL				
ART UNIT		PAPER NUMBER		
1793				
MAIL DATE		DELIVERY MODE		
08/26/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/784,549

Applicant(s)

FLANAGAN, AIDEN

Examiner

MICHAEL ABOAGYE

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 48-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 48-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 14, 2008 has been entered.

Specification

2. The disclosure is objected to because of the following informalities: In the specification page 2, update the status of the parent Application Serial No. 10/301,984, filed November 22, 2002, to US Patent No. 6,696,667. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 48-65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 48 recites the limitation "the conical mirror

having an apex with an aperture therethrough that is traversed by the workpiece along its longitudinal axis". The phrase "traversed by the workpiece" so used in this limitation lacks clarity and therefore renders the claim indefinite. It should be noted that a workpiece aligned and caused to move in front of an aperture of a conical mirror reads on said limitation. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 48-69 insofar as definite (in view of the 35 U.S.C. 112, second paragraph rejection) are rejected under 35 U.S.C. 103(a) as being unpatentable over Shapovalov et al. (US Patent No. 6,563,080) in view of Freedenburg et al. (US Patent No. 5,620,618), Weerasinghe et al. (GB 2244851) and Pressler (US Patent No. 6,705,736).

Shapovalov et al. teaches a method of manufacturing a medical device from a work-piece, comprising: generating a beam of radiation from a radiation source, and directing the radiation beam onto the workpiece so that the radiation beam cuts a desired pattern in the workpiece (column 1, lines 36- 43; and column 2, lines 11-24);

wherein the workpiece is a tubular "247" (column 2, lines 50-53 and figure 5); redirecting the radiation beam so that it impinges on the circumference of the tubular workpiece (Figure 5); positioning at least one optical element along an optical path between the radiation source and the workpiece (figure 5: (optical elements 240, 220, 215, 214, and 205); wherein the workpiece comprises a biocompatible material, said material being stainless steel; wherein the medical device is a stem (column 1, lines 28-35); wherein the medical device is a catheter (column 1, lines 15-18); wherein the tubular workpiece is translated along its longitudinal axis during the step of directing the radiation beam; wherein the tubular workpiece is rotated about its longitudinal axis during the step of directing the radiation beam; wherein the tubular workpiece is rotated about its longitudinal axis during the step of directing the radiation beam (column 4, lines 27-33; column 5, lines 39-47 and figure 5); wherein the radiation beam is a laser beam; wherein the laser beam is a pulsed laser beam (column 5, lines 23-38, and figure 3d); wherein each subsequent scan over the common path removes additional material from the workpiece; wherein the prescribed pattern defines an opening in the tubular workpiece, (note the process of cutting, polishing, engraving and the like removes material and also creates a hole in the stent),(column 2, lines 50-53, and column 6, lines 9-11).

Shapovalov et al. does not expressly teach scanning the beam with a galvanometer comprising a comprising two mirrors pivoted about two orthogonally axis and F-theta lens for generating a flat focal plane before impinging the workpiece.

However, Freedenburg et al. teaches an apparatus and a method of laser machining. The method practiced with the apparatus having a galvanometer comprising two mirrors pivoted about two orthogonally axis and disposed along the optical path of the laser beam to permit bidirectional scanning of the beam onto the workpiece for cutting, machining or processing the workpiece without interruption (column 13, lines 59-67); said scanner "59" having moving mirrored surface 50, 50' for redirecting a laser beam "125", at an angle of 90 °C in the X-Y plane ("50", figure 7, column 10, lines 12-15, and figures 5A, 5B); Freedenburg et al. also teaches disposing along the optical path of the laser beam an F-theta lens (flat field telecentric lens) for and also directing the beam such that the center of focus is planar and perpendicular (i.e. 90 °C) to the target at all points along the scan field (column 3, lines 56-67). Note the F-theta lens of Freedenburg et al. includes the conical and elliptical mirrors recited in claims 32 and 33. Freedenburg et al. also teaches the laser beam over a common path a plurality of times by redirecting from a first end of the workpieces to a second end and then retracting back to the first end (Freedenburg et al., column 13, and lines 59-65).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the method of Shapovalov et al. to disposed a galvanometer and an F-theta lens along the optical path of the laser beam as taught by Freedenburg et al. in order to permit scanning the laser over a common path a plurality of times along the circumference of the workpiece for cutting, machining or processing the workpiece without interruption (Freedenburg et al., column 13, lines 59-67), and also to obtain a beam planar and perpendicular (i.e. 90 °C) to the target at all

points along the scan field (Freedenburg et al. (column 3, lines 56-67) thereby permitting the production and machining of micro- components at high output and low defect rates (Freedenburg et al., column 4, lines 5-9).

Shapovalov et al. and Freedenburg et al. do not expressly teach a conical mirror in the optical path.

Weerasinghe et al. teaches a method of laser cutting, scribing or drilling having a conical mirror disposed in the optical path for producing circular beam which produces a non-directional beam which is equally polarized in all directions and therefore enhances the laser cutting or the drilling speed, produces perfect circular drill holes in a workpieces compared to distorted shaped produced by plane polarized beams. Said conical mirror is also less sensitive to misalignment since the mode axis is not displaced (Weerasinghe et al. , abstract, page 1 and figures 1 and 2).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the combined invention of Shapovalov et al. and Freedenburg et al. to use a conical mirror as taught by Weerasinghe et al. to improve certain qualities of the laser beam, example, beam speed, polarization and alignment of mode axis and thereby improving the quality of the laser processing operation (Weerasinghe et al. page 1).

Shapovalov et al., Freedenburg et al. and Weerasinghe et al. combined fail to specifically disclose a conical mirror with aperture therethrough.

Pressler teaches light or beam tunneling method comprising a conical mirror having an apex with aperture therethrough disposed in the optical path; said conical

mirror characterized in that, light or beam gathered on the surface of said mirror are reflected to travel substantially parallel and more concentrated along a central axis (Pressler, abstract, column 3, lines 6-36, column 4, lines 50-64 and claims 13 and 19).

It would have been obvious to one of ordinary skill at the time applicant's invention was made to modify the combined inventions of Shapovalov et al., Freedenburg et al. and Weerasinghe et al. to use a conical mirror with aperture therethrough as taught by Pressler, wherein said aperture would serve as line of focus or the central axis in the optical path to align the workpiece (Pressler, abstract, column 3, lines 6-36, column 4, lines 50-64 and claims 13 and 19).

Response to Arguments

7. The examiner acknowledges the applicants' amendment received by USPTO on July 14, 2008. Claims 48-69 remain under consideration in this application.

8. Applicant's argument with respect to the conical mirror with aperture at the apex has been considered but is moot in view of the new ground(s) of rejection based on the Patent to Pressler.

Regarding applicant's argument that none of the cited references that show or suggest, alone or in combination, an arrangement in which the workpiece traverses an aperture through a conical mirror. It is noted that, the phrase "traversed by the workpiece" so used in claim 48 lacks clarity and therefore renders the claim indefinite. It should be noted that, a workpiece aligned and caused to move in front of an aperture of

a conical mirror reads on said limitation. Pressler teaches a conical mirror with an aperture and therefore provides the remedy for the deficiency of the combined invention of Shapovalov et al., Freedenburg et al. and Weerasinghe et al. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding Applicant's argument that the examiner failed to demonstrate how the proposed arrangement formed from the combination of Shapovalov et al., Freedenburg et al. and Weerasinghe et al. can result in the beam being scanned about the circumference of the workpiece without the need to rotate the workpiece. The examiner disagrees with the applicant's assertion. It should be noted that claim 66 as set forth, requires the following structural features for its practice, i.e. radiation source, scanning device and a workpiece. The combined invention of Shapovalov et al., Freedenburg et al. and Weerasinghe et al. teach all these features and furthermore Shapovalov et al. teaches an embodiment in which the laser beam is rotated about the longitudinal axis of the workpiece while the workpiece is kept stationary, a process step which necessarily involves redirecting the radiation beam about a circumference of the tubular workpiece, in a similar way as relied on by applicant (Shapovalov, column 5, lines 39-47).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL ABOAGYE whose telephone number is (571)272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Aboagye/
Assistant Examiner,
Art Unit 1793

/Kevin P. Kerns/
Primary Examiner, Art Unit 1793